gigantic Delphinoids, *Catodon* or Sperm-Whale, is represented only by an atlas, and the lower jaw of a very young individual, at Leyden, and, if I remember rightly, an atlas at Brussels. There is, however, in a church at Scheveningen, in Holland, a skull, in a very imperfect condition, of one of these animals, washed ashore near that place in the year 1617.

2. On a New Species of Grampus (Orca meridionalis) from Tasmania. By William Henry Flower, F.R.S., F.R.C.S., etc., Conservator of the Museum of the Royal College of Surgeons.

The Museum of the Royal College of Surgeons has lately received from Mr. W. L. Crowther, of Hobart Town, two skulls belonging to an animal there called "Blackfish," a term, it may be remarked, which has been applied by sailors to many different species of Cetaceans. On showing them to Dr. Gray, whose extensive experience in regard to this order is well known, he immediately pronounced them to belong to a species unknown to him. At the same time he pointed out their resemblance to the skull found in a semifossil state in Lincolnshire, described and figured by Professor Owen under the name of *Phocæna crassidens**, to which species Professor Reinhardt of Copenhagen has recently referred a Cetacean still existing in the North Sea†. I have since had an opportunity of examining the extensive collections of skeletons and crania of Cetacea in the Museums of Leyden, Louvain, and Brussels, and have not found in them any similar specimen.

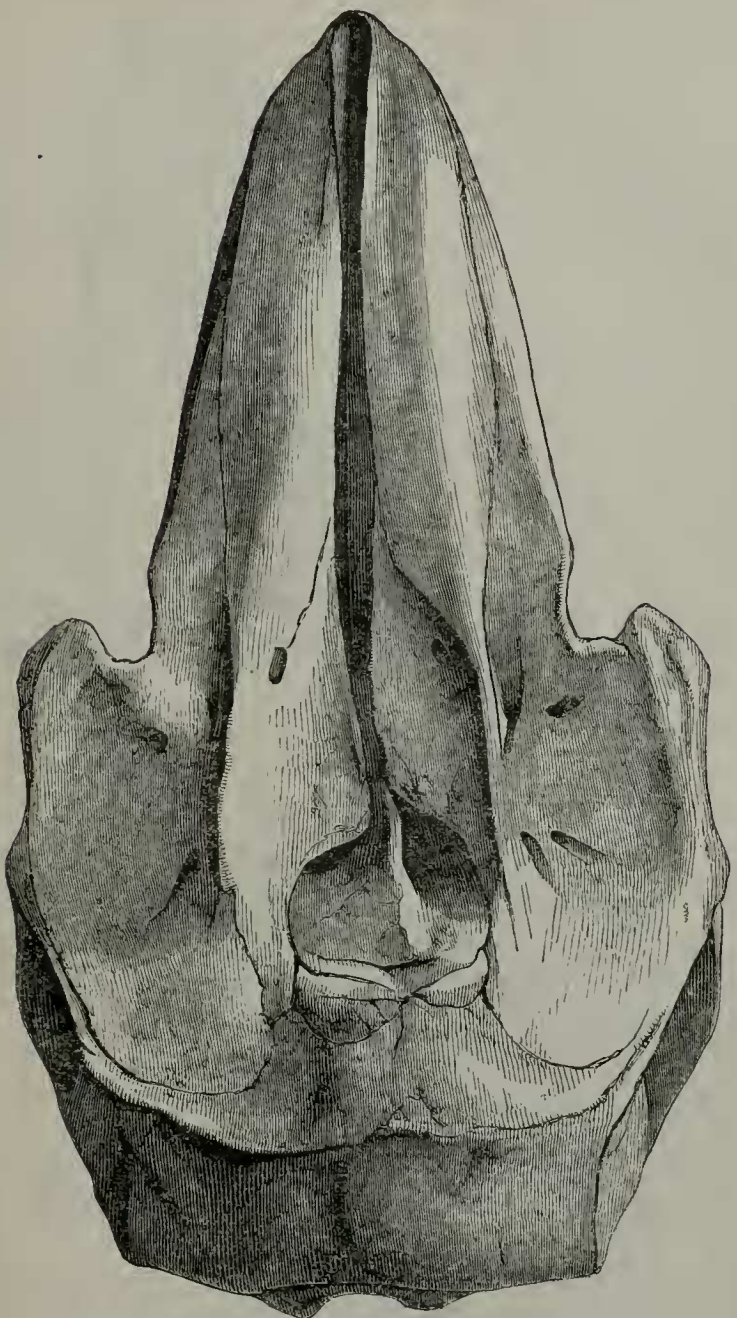
In reply to some queries respecting the animal from which the skulls were obtained, which I addressed to my esteemed correspondent Mr. Crowther (who, besides being one of the leading medical practitioners in the colony, is also the owner of several whaling-vessels), that gentleman writes as follows :—

"'Blackfish.'—This fish is in reality a miniature Sperm-Whale in its habits, &c., feeding upon the same food ('squid'), geographically occupying the same localities as the Sperm-Whale, following the great equatorial currents so long as they retain their warmth, and met with in the greatest numbers in the southern hemisphere at those points where the equatorial meet the polar currents, eddies being formed in which no doubt the squid collects. I am not aware that the Blackfish preys upon anything but squid; it is essentially gregarious, countless hordes being met with where food is abundant. Length 12 to 15 feet; diameter 3 to 4 feet. Colour, black on the back and sides, lighter below. Males much larger than the females. Head obtuse, after the fashion of the Sperm-Whale. Pectoral fins small. Dorsal fin hook-shaped, and situated about two-thirds along the body towards the tail. Weight two to three tons, the former about the average. Oil, the only kind that will mix with sperm."

* A History of British Fossil Mammals and Birds: 1846, p. 516.

† "Pseudorca crassidens, et for den Danske fauna nyt Hvaldyr" (Særskilt Aftryk af Oversigten over d. K. D. Vid. Selsk. Forhandl. Nov. 1862).

Fig. 1.



Upper surface of the adult skull; one-fourth natural size.

The two skulls present considerable individual peculiarities; but these all arise, I believe, from difference of age. One is perfectly adult; the suture between the frontal and occipital bones is entirely obliterated; the upper ends of the maxillaries are ankylosed to the

frontal; the teeth, though pointed at the tips, have a polished surface, and many of them are worn at the sides by the mutual action upon each other of the upper and lower series. In the other skull the ossification of the sutures is less advanced; the teeth show no signs of wear, and have a uniform slightly rugous or granulated surface. This skull differs from the other, as will be more particularly shown by the measurements, in having the facial portion and all the ridges and outgrowths of the cranium for the attachment of muscles much less developed in proportion to the size of the cerebral cavity. In all essential specific characters they agree. Unless otherwise expressed, the description and comparisons which follow refer to the adult skull.

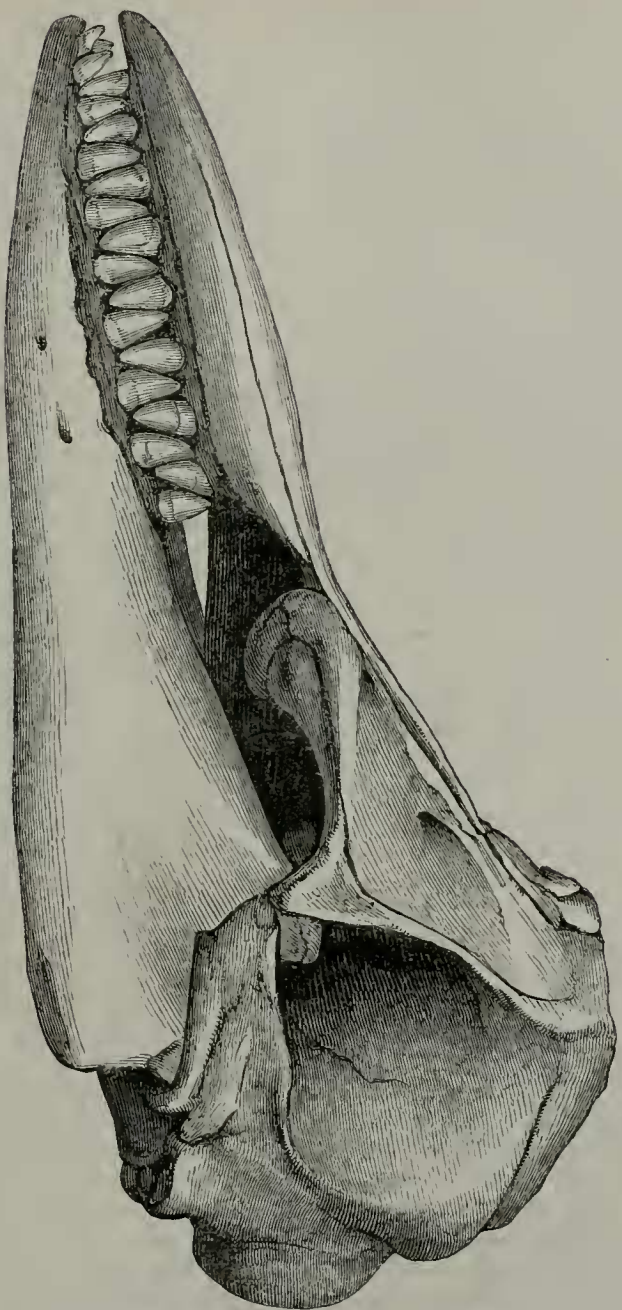
The skulls correspond in their general characters with those of the genus *Orca*, as established by Gray*. The "teeth conical, acute, large, occupying the whole edge nearly to the notch, permanent," sharply differentiates them from all allied genera; but the definition of *Orca*, as far as it relates to the intermaxillaries "being one-half the width of the jaw-bones," would not include them. Reinhardt has raised *O. crassidens* to the rank of a genus, under the name of *Pseudorca*; and to this section our present skulls undoubtedly belong, though by a slight extension of the definition of the parent genus they might conveniently be included in it. The true affinities of the animal, however, cannot be satisfactorily decided without an examination of the characters of the remainder of the skeleton, which, with Mr. Crowther's assistance, I hope before long to be able to make.

The principal dimensions of the two skulls are as follows:—

	Adult.	Young.
	in.	in.
Length from tip of beak to condyles	23¼	20¼
Internal length of brain-cavity	7½	7
Length of beak (from a line drawn between the maxillary notches, to the tip)	11¼	9½
Length from tip of beak to anterior margin of superior nares	14¼	12
Length of palate (from tip of beak to posterior margin in middle line)	15	12¾
Length from tip of beak to hinder edge of posterior tooth	9¼	8¼
Height of skull at vertex	8¾	8½
Greatest breadth (at zygomatic processes of squamosals)	13	11
Breadth of brain-case in parietal region	9½	9¾
Breadth at supraorbital ridge	11¾	10
Breadth of the base of the beak, inside maxillary notch	7¼	6¼
Breadth of the middle of the beak	5¾	5¼
Breadth of the two premaxillaries, with their intervening space at the middle of the beak	4½	3¾
Width of condyles	5¾	4¾
Foramen magnum, height	2¼	
Foramen magnum, width	2½	2
Lower jaw, entire length of each ramus	19	16¼
Lower jaw, from tip to the posterior edge of last tooth	9¾	8¼
Length of symphysis	3½	2½
Height of ramus, at coronoid process	5	4
Width, posteriorly, between outside of articular surfaces	12¼	10¼

* Zool. Erebus and Terror: 1846. Cat. Cetacea Brit. Mus.: 1850.

Fig. 2.



Side view of the adult skull; one-fourth natural size.

The teeth are nearly circular in section, stout, conical, pointed, incurved, and very slightly recurved. The crowns of the largest measure 1·2 inch in length, and 0·65 inch in diameter at the base.

With the exception of the two anterior and the posterior, they are of very nearly equal size throughout. Their number is the same in both skulls, viz. eight on each side above, and ten below; but though the whole number is the same, I suspect that it is not exactly the corresponding teeth which are in place in both specimens, at all events as far as the upper jaw is concerned. By comparing tooth with tooth, especially as regards their position in the alveolar margin, the older specimen would appear to have lost the small anterior pair present in the younger one; while in the latter the posterior pair appear not yet to have been developed. It must be confessed that our knowledge of the growth and succession of these organs in the Cetacea is at present so imperfect that we ought not to lay much stress upon any trifling variations in their number or character in discriminating species.

The only other species of *Orca* from the southern hemisphere hitherto known is *O. capensis*, Gray, an animal closely allied to, indeed by some naturalists thought to be identical with *O. gladiator*, the common Killer or Grampus of our seas. The principal differences between the Tasmanian skull and that of *O. capensis* are the following:—Its size is much smaller, measuring in entire length but 23 instead of 38 inches. The brain-cavity is relatively very much larger, and the outer surface of the cranium comparatively smooth. In *O. capensis* the ridges for the attachment of the muscles are enormously developed, and conceal the form of the brain-case. These differences, being those that are found between young and old individuals of the same species, might at first sight give rise to the idea that such a relationship existed between the two skulls under comparison, were it not for the signs of maturity possessed by the smaller skull, and did we not also know that a similar relation exists between the small and large species of all natural groups. But, in addition to these, in the Tasmanian skull the nasals are larger, and the prefrontal does not rise in front of them to the vertex of the head, as in *O. capensis*. A great difference is also seen in the form of the premaxillaries: in the new specimen these bones are widest at the middle of the beak, their outer border at this part being convex, approaching in the amount of their encroachment upon the maxillaries those of the genera *Grampus* and *Globiocephalus*; while in the large Cape species they are very narrow at the middle of the beak, and dilate towards their anterior termination, the outer border being concave. The form of the palate is generally the same; but it is rather more contracted behind the last tooth, and the tooth-line is rather less curved, than in *O. capensis*. The teeth are fewer in number, more regularly conical, less compressed in the antero-posterior direction. In the lower jaw the symphysis is proportionately longer, more shallow and sloping. As *O. gladiator* agrees with *O. capensis* in all the above-named points, the present species is distinctly differentiated by its cranial characteristics from the two large members of the genus.

In the 'Zoology of the Erebus and Terror,' Dr. Gray has figured and described a skull (in the British Museum, locality unknown)

under the name of *Orca intermedia*. This is evidently that of a very young individual, probably of one of the above-mentioned large species. At all events the number of the teeth $(\frac{11}{11})$ and the form of the premaxillaries distinguish it from the Tasmanian skulls.

To find distinctive characters to separate the present species from *O. crassidens* is a matter of greater difficulty. I speak of the animal now existing in the northern seas, which Reinhardt has fully described in an illustrated memoir in the Danish language, and which he believes to be identical with the Lincolnshire specimen. Not having yet been able to get a translation of Professor Reinhardt's paper, I cannot make so good a comparison as is desirable, though the figures which he gives to a great extent supply the deficiency. In the first place I must remark that the *O. crassidens* is of very rare occurrence in the northern seas, having been only recently added to the Scandinavian fauna. Our "Blackfish," on the other hand, appears to be the most abundant of the Cetacea inhabiting the seas around Tasmania. It is possible that, being a warm-water animal, it may occasionally cross the line and stray into northern latitudes; but the belief is gaining ground among naturalists who have specially investigated the Cetacea, that the geographical range of the different species of the order is much more limited than at one time supposed.

Professor Reinhardt's figure of the external form of his specimen differs widely from Mr. Crowther's description, the dorsal fin being situated rather anterior to the middle of the back, and the head being small and flat, certainly offering no peculiarity which could cause it to be compared to the Sperm-Whale by men practically acquainted with the distinctive characters of these animals. In size the skulls nearly correspond, the two of which Reinhardt gives the dimensions being each 24·7 English inches long. In general characters also, in the proportions which the beak bears to the rest of the skull, and in the breadth of the intermaxillaries, they agree very closely. A minuter inspection, however, shows differences which, presuming Professor Reinhardt's figure to be correct, could scarcely be found among individuals of the same species. The Tasmanian skull is narrower in proportion to the length, the beak is much more pointed at the extremity, and the premaxillaries are of different form. In *Pseudorca crassidens* they are of nearly equal breadth from one end to the other, their outer margins being almost parallel; in the Tasmanian skulls they are contracted at the root of the beak, and then gradually expand to about the middle, beyond which they slowly diminish in breadth to the point. An examination of the skulls placed side by side might possibly reveal other differentiating characters; but I think that these are sufficient, together with the great improbability of the same species being found in such widely different regions, to justify my regarding the small Grampus from Tasmania, however familiar to the inhabitants of that country, as a species new to zoological literature, and imposing upon it the name of *Orca* (*Pseudorca*?) *meridionalis*. Probably, as in the case of some other

genera of Cetacea, we have here representative species, one in the northern and the other in the southern hemisphere; but if hereafter they should prove to be identical, the main habitat of the animal is undoubtedly in the temperate seas of the further side of the equator.

3. Report on the Birds of Palestine.
By H. B. Tristram, M.A., F.L.S.

1. Gypaëtos barbatus (L.).

A few pairs may be seen in almost every part of the country. The Lammergeyer is, however, nowhere common, though more plentiful on the eastern than on the western side of Jordan.

2. Vultur monachus, L.

Rarely have I had an opportunity of identifying this magnificent Vulture, which occurs, not in flocks, but only, so far as we could observe, in pairs, throughout the country. It does not appear to breed in society; and the only nest we took was solitary in a cliff facing the Lake of Galilee, where my friend Mr. Shepherd climbed and took the single egg on February 27th, the bird having remained on her nest till we were within 6 feet of her.

3. Gyps fulvus, Gm.

Very common and a permanent resident from the south end of the Dead Sea up to the spurs of the Lebanon, among which mountains we rarely observed it. Breeds in many places in large colonies. We counted more than 120 birds together, put off their nests by the firing of our guns, in a single wady. It is more plentiful in the north than in the south, doubtless for reasons of commissariat, but everywhere is sociable; we never observed so few as a single pair in any locality. It breeds, as in Africa, in the beginning of March.

4. Neophron percnopterus, L.

Universally diffused over the whole country in summer, but never seen in winter. It does not breed, like the Griffon, in colonies, but is scattered abundantly and almost equally over all parts of the country. It returns from the south about the end of March. The first we shot was obtained on April 4th. The nests are generally in the lower parts of the cliffs, and not very difficult of access, in this respect differing very decidedly from the Griffon's. The first egg we obtained was on April 1st, and the last *fresh* eggs found were on May 24th. Several birds in the dark immature plumage were seen in April, evidently not having paired, and proving that the white plumage is not attained until the third year.

5. Aquila chrysaëtos, L.

Not so common in summer as in winter, when it is found abun-